

Re: Problem with PIC & LCD display

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- *From:* Steve H <steveu@xxxxxxxxxxxxxxxxxxxx>
 - *Date:* Thu, 1 May 2008 21:08:07 +0100
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In message <gp6k14lkhns618g04kgnh3gdiaipgsn9p@xxxxxxx>, Spehro Pefhany <speffSNIP@xxxxxxxxxxxxxxxxxxxxxxxxxxxx> writes

On Thu, 1 May 2008 17:51:39 +0100, Steve H <steveu@xxxxxxxxxxxxxxxxxxxx> wrote:

I'm having a problem with a fairly simple project incorporating a 16F877A PIC and a 4x20 alphanumeric display module. The circuit interfaces with other logic ICs, though these can be removed from the circuit to isolate the problem.

The circuit is fed, under test conditions, from a linear 12v power supply. The 5v regulator on the circuit board is decoupled using 100nf ceramic capacitors. There is similar decoupling on the PIC itself, and at other places e.g. decoupling the 5v supply on the connector to the LCD display. I have also fitted a 100uH coil in the supply to the 5v regulator to reduce any effects from spurious noise on the supply line.

The problem I'm having difficulty solving is that the display will intermittently go blank. It will go blank, seemingly when the display is written to by the PIC, either (a) due to a spike/noise on the mains supply (this can be intermittently reproduced by repeatedly turning on and off a piece of mains powered equipment on the same circuit), or (b) when the 0v rail (not even necessarily close to the LCD display) is touched by for example a multimeter probe. This is the most consistent way of producing the fault. The multimeter can be turned off and the other probe not connected to anything for this to happen. The PIC doesn't appear to be affected by any of this as it can be shown to still be operating as expected.

Are you sure it's not resetting?

I'm certain the PIC isn't resetting – the LCD module is going blank but the PIC continues to function. It appears the intelligent LCD module locks up/resets itself.

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I've experienced similar issues before in my limited experience of building small projects with PICs. I had issues with a 16F84A resetting itself when the 0v rail close to the IC was touched with a screwdriver.

Can anybody suggest what vital consideration for circuit design I'm missing. I'm at a bit of a loss as to what I'm doing wrong.

Thanks.

What else EXACTLY is this PIC circuit connected to (off board in particular)? How long is the cable to the LCD display? What kind of equipment is this? Can you link to a photo? Is it a proper PCB or a plugboard?

Have no photo to hand and the equipment isn't with me just now. Fully assembled it comprises the PIC with LCD, 4 control buttons and several logic inputs/outputs, four of which control 4 to 16-line latches that switch solenoids via darlington drivers. The unit is part of a gas sampling multiplexer system.

Currently, a lot of the circuitry is disconnected – there are 3 individual PCBs (etched boards). It's working in a bare-bones sort of state at the moment, pretty much the PIC and display only

An earlier version of the device, identical but utilising in place of the 16F877A/LCD a pair of 16F84As and driving a 2 x 7segment LED display, has worked in the field flawlessly for 3 years.

Best regards,
Spehro Pefhany

—
Steve H